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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,855	11/12/2003	John Warren Maly	200208463-1	8646
22879 7590 09/11/2007 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER SILVER, DAVID	
			ART UNIT 2128	PAPER NUMBER
			MAIL DATE 09/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/712,855

Applicant(s)

MALY ET AL.

Examiner

David Silver

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

1. Claims 1-20 were originally presented for examination.
2. Claims 1-20 were rejected.
3. Claim 6 was cancelled and therefore withdrawn from consideration.
4. Claims 1-5 and 7-20 are currently pending in Instant Application.
5. The Instant Application is not currently in condition for allowance.

Priority

6. Priority is not claimed.

Copies of Applications

7. **Background:**

IDS submitted on 12/3/03 failed to comply with 37 CFR 1.98(a)(2) and thus was not considered.

8. **Applicants state:**

"Copies of applications 10/712,902 and 10/712,518, cited in the information disclosure statement of December 3, 2003, are submitted herewith." (Remarks dated 6/25/07 ("Remarks"): page 7)

9. **Examiner Response:**

The submitted copies of applications 10/712,902 and 10/712,518 ("Applications") have not submitted with a new IDS form that reflects up-to-date information. The previous IDS cannot be considered because the Applications were submitted **after** rules set forth in 37 CFR 1.97(b); however, the IDS indicates otherwise. A newly revised IDS form is required for consideration.

Response to Arguments

Response: Claim Objections

10. **Background:**

"Claims 2, 3, 7, 9, 17 and 18 have been objected to under 35 C.F.R. 175(c) for failing to further limit the subject matter of a previous claim, and specifically, for containing a single conditional limitation."

(Remarks: page 7)

11. **Applicants argue:**

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"Claims 2, 3, 7, 9 and 18 have been amended. With respect to claim 17, Applicant respectfully disagrees and traverses the objection. Applicant notes that the additional program code of claim 17 exists whether the condition discussed in claim 17 is satisfied or not, and the existence of this conditionally executed program code is a limitation regardless of the outcome of the condition." (Remarks: page 7)

12. Examiner Response:

Objections **withdrawn**.

Response: 35 U.S.C. § 101

13. Background:

Claims 1-20 stand rejected under 35 U.S.C. § 101 as being drawn to non-statutory subject matter.

14. Applicants argue:

14.1 "In the present case, each of Applicant's remaining claims is explicitly directed to a category of invention identified in 35 U.S.C. 101. Specifically, claims 1-5 and 7-14, as amended, are directed to a "method" which comprises a process and claims 15-20, as amended, are directed to a "physical computer-readable medium" or "tangibly embodied electronically executable instructions" which comprises one or both of a machine and a manufacture.

14.2 "Furthermore, even if Applicant's claims, as amended, did fall within one of the judicial exceptions, each produces the useful, concrete and tangible result of signaling when an error has been detected.

"In view of the above, Applicant respectfully submits that each of Applicant's remaining claims is directed to statutory subject matter as defined by 35 U.S.C. 101 and therefore respectfully requests that the rejections be withdrawn." (Remarks: page 11)

15. Examiner Response:

15.1 As per claims 1-5, and 7-14 and its dependent claims, the claims are drawn to a software algorithm *per se*. Applicants' argument regarding the "signaling" producing a tangible result are not persuasive. MPEP 2106 recites, in part, "a claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application. In

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other words, if the specification discloses a practical application of a section 101 judicial exception, but the claim is broader than the disclosure such that it does not require a practical application, then the claim must be rejected". The signaling is conditional on whether an event was not appropriately generated. When it was appropriately generated then there is no signaling and the claims are drawn to non-statutory subject matter. Rejections **maintained**.

15.2 As per claims 15-20, in view of MPEP 2106.01, which recites, in part, "When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized", the amendments are deemed sufficient to overcome the 35 U.S.C. § 101 deficiency. Rejection **withdrawn**.

Response: 35 U.S.C. § 112

16. Background:

Claims 5 and 6 stand rejected under 35 U.S.C. 112, second paragraph, as being **indefinite** for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-19 stand rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: verifying events generated by an agent (as mentioned in the preamble).

Claim 20 stands rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: testing the operation of a memory agent (as mentioned in the preamble).

17. Applicants argue:

"Applicant believes that the claims, as amended, are definite and complete and respectfully requests that the rejections be withdrawn." (Remarks: bottom of page 11 to top of page 12)

18. Examiner Response:

Applicants are thanked for amending the claims in order to overcome the 35 U.S.C. § 112 rejection. The rejections have been **withdrawn**.

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The amendment however add new 35 U.S.C. § 112 second paragraph deficiency which is detailed in the respective section below.

Response: 35 U.S.C. § 102(b)

19. Background:

Claims 1-5, 7-20 stand rejected under 35 U.S.C. 102(b) as being anticipated by Sharma (**USP 6,412,046**).

20. Applicants argue:

20.1 "Claims 1-20 are believed allowable over Sharma at least because Sharma does not disclose or suggest determining whether generation of an event by an agent in response to a stimulus is conditional. Sharma appears to control a memory agent in a defined fashion (col. 3, line 57, wherein the agent is assigned to read addresses in a contiguous and increasing fashion) and the expected results are explicitly calculated (see col. 3, line 58-61, wherein number of prefetch lines are calculated, and col. 2, lines 50-52, wherein the verification method is exact based on a strict definition of which cache lines should be prefetched).

20.2 Sharma does not appear to disclose or suggest expectations of future events whose actual generation is speculative. Sharma appears to determine exactly what events should take place. The simple fact that Sharma's future events have varied forms, such as the number of lines to be prefetched, does not mean that their occurrence is speculative. Sharma discloses the calculation in advance of what the correct form of each future event will be, and the generation of those future events is not speculatively based on some condition." (Remarks: page 12)

21. Examiner Response:

21.1 As per subsection 1 *supra*, Applicants' attention is drawn to (**col: 3 line: 35-46**), which recites, in part:

"If the cache controller does not prefetch the four lines (absent some other condition such as proximity to the block boundary), an underprefetch condition exists, with a negative affect on performance of excessive memory latency." (emphasis added)

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From this citation it is clear that the control of the memory agent is not a strictly defined fashion, nor is the calculation is exact based on a strict definition. This is evidenced because as Sharma states there exist other conditional factors, such as proximity to the block boundary. The Applicants' argument that a strict definition is noted, however is unpersuasive. More specifically, it is identical to the claimed invention, wherein Sharma has a method which includes a strict definition of which cache lines should be prefetch and which cache lines should not be prefetched", but does not guarantee them (due to "some other condition") and is thus speculative. The should / should correlate to the "expectation" of the Claimed Invention.

Additionally, Shama's disclosed invention is further conditional upon the address of the memory.

21.2 As per subsection 2 *supra*, Applicants' arguments are based on the erroneous position that Sharma does not teach expectation whose actual generation is speculative. This is unpersuasive for the reasons above. Furthermore, to evidence that the event generation is speculative, attention is drawn to **(col: 7 line: 1-2)**, which discloses that an error flag is set when a fetch or prefetch is beyond what is allowed to be prefetched. From this, it is clearly seen that there is a uncertainty and speculation to the actual fetching and prefetch events.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

22. Claims 1-5, and 7-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

MPEP 2106 recites, in part:

"...USPTO personnel shall review the claim to determine it produces a useful, tangible, and concrete result. In making this determination, the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather on whether the *final* result achieved by the claimed invention is "useful, tangible, and concrete."

MPEP 2106 recites, in part,

"a claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application. In other words, if the specification discloses a practical application of a section 101 judicial exception, but the claim is broader than the disclosure such that it does not require a practical application, then the claim must be rejected".

22.1 The method claims do not produce a useful, tangible, and concrete final result. The steps of the

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method claims do not produce a useful, tangible, and concrete result. They merely recite a software algorithm, per se, which, for example, does not display, store, or otherwise provide a useful tangible output. Note exemplary claim 1 which only recites software steps and does not produce a useful tangible and concrete final result. See MPEP 2106 [R-5] (partially recited above). If the specification discloses a practical application of a section 101 judicial exception, but the claim is broader than the disclosure such that it does not require a practical application, then the claim must be rejected". The signaling is conditional on whether an event was not appropriately generated. When it was appropriately generated then there is no signaling and the claims are drawn to non-statutory subject matter.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

23. Claims 1-5, and 7-20 are rejected under 35 U.S.C. 112, second paragraph, as being **indefinite** for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per all independent claims, the limitation "verifying whether said event was appropriately generated by said agent" renders the claim indefinite (emphasis added). Specifically, how is determination of appropriateness made? Additionally, the term appropriate has two meanings and it is not clear from the context of the claim which meaning is being claimed, thus rendering the claim indefinite. Specifically, the term "appropriate" can mean required, or suitable for a particular purpose.

24. Claims not specifically mentioned are rejected by virtue of their dependency.

25. The Applicants are required to fix all other similar occurrences of the above-cited deficiencies.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale

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in this country, more than one year prior to the date of application for patent in the United States.

26. Claims 1-5 and 7-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Sharma (**USP 6,412,046**).

Sharma discloses: 1. A computer implemented method of verifying events generated by an agent, said method comprising:

detecting a stimulus at an input of said agent; determining whether generation of an event by said agent in response to said stimulus is conditional (**col: 3 line: 14-25; col: 2 line: 48-59**); creating an expectation of said event based at least in part on said stimulus, wherein said agent is expected to generate said event (**col: 1 line: 17-20; col: 4 line: 49-64; Fig 4, 5, 6 and description col: 2 line: 48-59**);

indicating that said expectation is speculative if said generation of said event is conditional, so that said expectation is a speculative expectation (**col: 2 line: 48-59; col: 7 line: 42-49; Fig 5 item 500 and Figure's description**),

verifying whether said event was appropriately generated by said agent; and signaling an error if said event was not appropriately generated by said agent (**col: 7 line: 1-5**).

Sharma discloses: 2. The method of claim 1, said determining whether said generation of said event is conditional comprises determining that said generation is conditional if said stimulus is a response containing an unmodified copy of requested data and other sources accessible by said agent may contain a modified copy of said requested data (**col: 1 line: 20-25 "stale copy"**).

Sharma discloses: 3. The method of claim 1, said determining whether said generation of said event is conditional comprises determining that said generation is conditional if said stimulus comprises a local read request response by a memory local to said agent (**Fig 4, 5, 6 and description; col: 4 line: 1-11**).

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Sharma discloses: 4. The method of claim 1, further comprising determining whether said event is expected based at least in part on said stimulus before creating said expectation of said event (**Fig 4, 5, 6 and description; Fig 5 description**).

Sharma discloses: 5. The method of claim 1, further comprising determining whether snoop responses have been received by said agent before said determining whether said generation is conditional (**Fig 4, 5, 6 and description; Fig 5 description**).

Sharma discloses: 6. The method of claim 5, wherein said determining whether enough information has been received comprises determining whether all snoop responses have been received by said agent (**col: 3 line: 14-26; col: 1 line: 58-60; col: 2 line: 60-67; col: 4 line: 16-21**).

Sharma discloses: 7. The method of claim 1, further comprising determining whether conditions indicate that said event should be generated by said agent, and if so, converting said speculative expectation to a non-speculative expectation by changing said indication that said expectation is speculative (**col: 3 line: 14-26; col: 1 line: 58-60; col: 2 line: 60-67; col: 4 line: 16-21; Fig 4, 5 and descriptions**).

Sharma discloses: 8. The method of claim 7, wherein said conditions comprise said agent receiving all expected snoop responses, said expected snoop responses containing no modified data (**col: 1 line: 20-25 "stale copy"**).

Sharma discloses: 9. The method of claim 1, further comprising determining whether conditions indicate that said event should be generated by said agent, and if so, deleting said speculative expectation if conditions indicate that said event should not be generated by said agent (**Fig 5 item 500 and Figure's descriptions**).

Sharma discloses: 10. The method of claim 9, wherein said conditions comprise said agent receiving a snoop response containing modified data (**col: 1 line: 23-25; col: 2 line: 31-37**).

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Sharma discloses: 11. The method of claim 1 said verifying comprising: detecting said event at an output of said agent; and checking said expectation to verify whether said agent correctly generated said event **(Fig 5 item 550 505, 510, 545. 555 and Figure's descriptions)**.

Sharma discloses: 12. The method of claim 1, said verifying comprising: detecting an outgoing event at an output of said agent; and checking a list of expectations of events to verify whether said agent correctly generated said outgoing event **(col: 7 line: 15-20; Fig 5 item 550 505, 510, 545. 555 and Figure's descriptions)**.

Sharma discloses: 13. The method of claim 1, wherein said generation of said event is conditional, said method further comprising: detecting an outgoing event at an output of said agent; and storing an indication that said outgoing event occurred in said speculative expectation **(col: 7 line: 42-49)**.

Sharma discloses: 14. The method of claim 13, further comprising: detecting information at said input of said agent indicating that said event corresponding to said speculative expectation should not be generated by said agent; and signaling an error indicating that said outgoing event should not have occurred **(col: 7 line: 15-20; Fig 5 and description)**.

As per claims 15-17, 19-20, note the rejection of claims 7, 2, 9, 8, 1 above, respectively. The Instant Claims recite substantially same limitations as the above-rejected claims and therefore rejected under same prior-art teachings.

Sharma discloses: 18. The apparatus of claim 17, wherein said condition is not satisfied if said memory agent receives a modified copy of requested data **(col: 1 line: 20-25)**.

Conclusion

27. All claims are rejected.

28. The Instant Application is not currently in condition for allowance.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Silver whose telephone number is (571) 272-8634. The examiner can normally be reached on Monday thru Friday, 10am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on 571-272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Silver
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Art Unit 2128



KAMINI SHAH
SUPERVISORY PATENT EXAMINER